

## **APPENDIX V**

### **Raw Frequency/Weight Data**

- A. Data for Appendix II - U.S. Patent No. 4,524,037 (Prior Art Reference - *Marc*)**
- B. Data for Appendix IA, U.S. Patent No. 4,980,110 (Issued Patent)**
- C. Data for Appendix IB, U.S. Patent No. 5,273,702 (Issued Patent)**
- D. Data for Appendix III, U.S. Patent No. 4,595,551 (Cited as Reference in Issued Patents - *Maurer*)**
- E. Data for Appendix IVA - U.S. Patent No. 4,627,177 (Control)**
- F. Data for Appendix IVB - U.S. Patent No. 4,364,189 (Control)**

## APPENDIX V

### A. Data for Appendix I - U.S. Patent No. 4,524,037 (Prior Art Reference - *Marc*)

#### (1) Data Used in Exemplary Semantic Analysis

Concept	Weight	Synonyms
apparatus for forming	14	Forming
cavity	42	
compression ratio	10	
electrode	7	
general	39	
heating	95	
heating period	63	
material	87	
material	89	
compressed		
means	70	method for forming    method
plastic	15	polyolefin                styrenic    resilient material
rf heating	89	
substance	60	
temperature	77	

#### (2) Composite and Specific Frequency/Weight Data

Concept	Frequency	Weight	Subordinate Concept
apparatus for forming	7	14	=====
cavity	10	42	=====
compression ratio	2	10	=====
electrode	3	7	=====
general	2	39	=====
heating	4	95	=====
heating period	2	63	=====
material	23	87	=====
material	2	89	=====
compressed			
means	8	70	=====
plastic	6	15	=====
rf heating	2	89	=====

substance	3	60 =====
temperature	4	77 =====
material	4	58 apparatus for forming
plastic	6	100 apparatus for forming
general	2	79 cavity
material	3	47 cavity
means	3	69 cavity
substance	3	89 cavity
material	2	32 compression ratio
means	2	51 electrode
cavity	2	47 general
material	2	32 general
substance	2	71 general
heating period	2	79 heating
material	3	47 heating
material	2	79 heating
compressed		
means	2	51 heating
rf heating	2	79 heating
temperature	2	65 heating
heating	2	65 heating period
material	2	32 heating period
means	2	51 heating period
apparatus for	4	82 material
forming		
cavity	3	64 material
compression ratio	2	79 material
general	2	79 material
heating	3	83 material
heating period	2	79 material
material	2	79 material
compressed		
means	4	79 material
plastic	4	86 material
rf heating	2	79 material
substance	3	89 material
temperature	2	65 material
heating	2	65 material compressed
material	2	32 material compressed
rf heating	2	79 material compressed
temperature	2	65 material compressed
cavity	3	64 means
electrode	2	71 means
heating	2	65 means
heating period	2	79 means
material	4	58 means

substance	2	71 means
apparatus for	6	96 plastic
forming		
material	4	58 plastic
heating	2	65 rf heating
material	2	32 rf heating
material	2	79 rf heating
compressed		
temperature	2	65 rf heating
cavity	3	64 substance
general	2	79 substance
material	3	47 substance
means	2	51 substance
heating	2	65 temperature
material	2	32 temperature
material	2	79 temperature
compressed		
rf heating	2	79 temperature

## APPENDIX V

### B. Data for Appendix IIA, U.S. Patent No. 4,980,110 (Issued Patent 1)

#### (1) Data Used in Exemplary Semantic Analysis

Concept	Weight	Synonyms
carrying	4	
cavity	94	
closing	70	
cutting	90	
density	4	
energy	90	
fastening	5	
fastening	5	
means		
flashing	8	
forming	82	apparatus for thermoforming forming
forming cavity	90	
heating	69	
indicium	6	
means	5	
method	80	
method for	92	
forming		
parting	97	
peripheral	93	outer
peripheral	96	
parting		
polyolefin	80	Plastic styrenic
polyolefin being	22	
sufficient	48	
sufficient period	15	
temperature	77	
two	4	

#### (2) Composite and Specific Frequency/Weight Data

Concept	Frequency	Weight	Subordinate Concept
carrying	2	4	=====
cavity	13	94	=====
closing	7	70	=====

cutting	2	90 =====
density	4	4 =====
energy	2	90 =====
fastening	5	5 =====
fastening	3	5 =====
means		
flashing	2	8 =====
forming	6	82 =====
forming cavity	2	90 =====
heating	12	69 =====
indicium	5	6 =====
means	5	5 =====
method	26	80 =====
method for	3	92 =====
forming		
parting	7	97 =====
peripheral	8	93 =====
peripheral	4	96 =====
parting		
polyolefin	18	80 =====
polyolefin being	2	22 =====
sufficient	13	48 =====
sufficient period	4	15 =====
temperature	6	77 =====
two	2	4 =====
method	2	30 carrying
closing	4	82 cavity
cutting	2	79 cavity
energy	2	79 cavity
flashing	2	79 cavity
forming	3	75 cavity
forming cavity	2	79 cavity
heating	6	85 cavity
method	6	69 cavity
method for	3	89 cavity
forming		
parting	6	96 cavity
peripheral	5	87 cavity
peripheral	4	94 cavity
parting		
polyolefin	5	70 cavity
polyolefin being	2	79 cavity
sufficient	5	77 cavity
sufficient period	2	65 cavity
temperature	6	100 cavity
cavity	4	69 closing

heating	6	85 closing
method	4	55 closing
parting	4	82 closing
peripheral	2	51 closing
peripheral	2	65 closing
parting		
polyolefin	3	52 closing
sufficient	3	59 closing
temperature	3	75 closing
cavity	2	42 cutting
energy	2	79 cutting
forming	2	57 cutting
forming cavity	2	79 cutting
method	2	30 cutting
method for	2	71 cutting
forming		
parting	2	54 cutting
peripheral	2	51 cutting
peripheral	2	65 cutting
parting		
polyolefin	2	36 cutting
method	2	30 density
cavity	2	42 energy
cutting	2	79 energy
forming	2	57 energy
forming cavity	2	79 energy
method	2	30 energy
method for	2	71 energy
forming		
parting	2	54 energy
peripheral	2	51 energy
peripheral	2	65 energy
parting		
polyolefin	2	36 energy
fastening	3	89 fastening
means		
means	3	78 fastening
method	3	45 fastening
fastening	3	78 fastening means
means	3	78 fastening means
method	3	45 fastening means
cavity	2	42 flashing
method	2	30 flashing
cavity	3	59 forming
cutting	2	79 forming
energy	2	79 forming

forming cavity	2	79 forming
method	4	55 forming
method for	3	89 forming
forming		
parting	3	71 forming
peripheral	3	69 forming
peripheral	2	65 forming
parting		
polyolefin	3	52 forming
cavity	2	42 forming cavity
cutting	2	79 forming cavity
energy	2	79 forming cavity
forming	2	57 forming cavity
method	2	30 forming cavity
method for	2	71 forming cavity
forming		
parting	2	54 forming cavity
peripheral	2	51 forming cavity
peripheral	2	65 forming cavity
parting		
polyolefin	2	36 forming cavity
cavity	6	83 heating
closing	6	96 heating
method	6	69 heating
parting	4	82 heating
peripheral	2	51 heating
peripheral	2	65 heating
parting		
polyolefin	4	63 heating
sufficient	7	88 heating
sufficient period	4	94 heating
temperature	5	94 heating
method	2	30 indicium
polyolefin	2	36 indicium
fastening	3	78 means
fastening	3	89 means
means		
method	3	45 means
carrying	2	79 method
cavity	6	83 method
closing	4	82 method
cutting	2	79 method
density	2	65 method
energy	2	79 method
fastening	3	78 method
fastening	3	89 method



means		
flashing	2	79 method
forming	4	86 method
forming cavity	2	79 method
heating	6	85 method
indicium	2	60 method
means	3	78 method
method for	3	89 method
forming		
parting	5	90 method
peripheral	3	69 method
peripheral	2	65 method
parting		
polyolefin	9	89 method
polyolefin being	2	79 method
sufficient	5	77 method
sufficient period	2	65 method
temperature	3	75 method
two	2	79 method
cavity	3	59 method for forming
cutting	2	79 method for forming
energy	2	79 method for forming
forming	3	75 method for forming
forming cavity	2	79 method for forming
method	3	45 method for forming
parting	3	71 method for forming
peripheral	3	69 method for forming
peripheral	2	65 method for forming
parting		
polyolefin	3	52 method for forming
cavity	6	83 parting
closing	4	82 parting
cutting	2	79 parting
energy	2	79 parting
forming	3	75 parting
forming cavity	2	79 parting
heating	4	71 parting
method	5	63 parting
method for	3	89 parting
forming		
peripheral	5	87 parting
peripheral	4	94 parting
parting		
polyolefin	5	70 parting
polyolefin being	2	79 parting
sufficient	2	42 parting

temperature	4	86 parting
cavity	5	77 peripheral
closing	2	54 peripheral
cutting	2	79 peripheral
energy	2	79 peripheral
forming	3	75 peripheral
forming cavity	2	79 peripheral
heating	2	43 peripheral
method	3	45 peripheral
method for	3	89 peripheral
forming		
parting	5	90 peripheral
peripheral	4	94 peripheral
parting		
polyolefin	3	52 peripheral
sufficient	2	42 peripheral
temperature	3	75 peripheral
cavity	4	69 peripheral parting
closing	2	54 peripheral parting
cutting	2	79 peripheral parting
energy	2	79 peripheral parting
forming	2	57 peripheral parting
forming cavity	2	79 peripheral parting
heating	2	43 peripheral parting
method	2	30 peripheral parting
method for	2	71 peripheral parting
forming		
parting	4	82 peripheral parting
peripheral	4	79 peripheral parting
polyolefin	2	36 peripheral parting
sufficient	2	42 peripheral parting
temperature	2	57 peripheral parting
cavity	5	77 polyolefin
closing	3	71 polyolefin
cutting	2	79 polyolefin
energy	2	79 polyolefin
forming	3	75 polyolefin
forming cavity	2	79 polyolefin
heating	4	71 polyolefin
indicium	2	60 polyolefin
method	9	81 polyolefin
method for	3	89 polyolefin
forming		
parting	5	90 polyolefin
peripheral	3	69 polyolefin
peripheral	2	65 polyolefin

parting		
polyolefin being	2	79 polyolefin
temperature	3	75 polyolefin
cavity	2	42 polyolefin being
method	2	30 polyolefin being
parting	2	54 polyolefin being
polyolefin	2	36 polyolefin being
cavity	5	77 sufficient
closing	3	71 sufficient
heating	7	90 sufficient
method	5	63 sufficient
parting	2	54 sufficient
peripheral	2	51 sufficient
peripheral	2	65 sufficient
parting		
sufficient period	4	94 sufficient
temperature	4	86 sufficient
cavity	2	42 sufficient period
heating	4	71 sufficient period
method	2	30 sufficient period
sufficient	4	69 sufficient period
cavity	6	83 temperature
closing	3	71 temperature
heating	5	79 temperature
method	3	45 temperature
parting	4	82 temperature
peripheral	3	69 temperature
peripheral	2	65 temperature
parting		
polyolefin	3	52 temperature
sufficient	4	69 temperature
method	2	30 two

## APPENDIX V

### C. Data for Appendix IIB, U.S. Patent No. 5,273,702 (Issued Patent 2)

#### (1) Data Used in Exemplary Semantic Analysis

Concept	Weight	Synonyms
carrie integral fastening means	4	
cavity	94	
closing	36	
cutting	93	
density	7	
excess	5	
forming	89	apparatus for forming
forming cavity	93	
ft	4	
greater density	8	
heating	60	
lb	4	
method	81	
method for forming	95	Means
nonfoamed	5	
organic polymer	5	
parting	96	
peripheral	94	
peripheral parting	96	
polyethylene	8	
polyolefin	78	Plastic
polyolefin being	8	
steps	94	
sufficient	18	
sufficient period	8	
sufficient temperature	17	
temperature	72	

#### (2) Composite and Specific Frequency/Weight Data

Concept	Frequency	Weight	Subordinat	Concept
carrie integral fastening means	2	4	=====	
cavity	12	94	=====	

closing	6	36 =====
cutting	2	93 =====
density	8	7 =====
excess	2	5 =====
forming	5	89 =====
forming cavity	2	93 =====
ft	4	4 =====
greater density	2	8 =====
heating	14	60 =====
lb	4	4 =====
method	26	81 =====
method for forming	3	95 =====
nonfoamed	2	5 =====
organic polymer	2	5 =====
parting	7	96 =====
peripheral	8	94 =====
peripheral parting	4	96 =====
polyethylene	2	8 =====
polyolefin	21	78 =====
polyolefin being	2	8 =====
steps	5	94 =====
sufficient	15	18 =====
sufficient period	3	8 =====
sufficient temperature	6	17 =====
temperature	10	72 =====
method	2	30 carrie integral fastening means
closing	3	75 cavity
cutting	2	79 cavity
forming	3	78 cavity
forming cavity	2	79 cavity
heating	5	75 cavity
method	4	55 cavity
method for forming	3	89 cavity
parting	5	90 cavity
peripheral	5	87 cavity
peripheral parting	4	94 cavity
polyolefin	6	73 cavity
steps	4	89 cavity
sufficient	2	39 cavity
sufficient period	2	71 cavity
temperature	4	75 cavity
cavity	3	60 closing
heating	4	68 closing
parting	3	71 closing
peripheral	2	51 closing

peripheral parting	2	65 closing
temperature	2	47 closing
cavity	2	43 cutting
forming	2	60 cutting
forming cavity	2	79 cutting
method	2	30 cutting
method for forming	2	71 cutting
parting	2	54 cutting
peripheral	2	51 cutting
peripheral parting	2	65 cutting
polyolefin	2	33 cutting
steps	2	60 cutting
excess	2	79 density
ft	2	65 density
greater density	2	79 density
lb	2	65 density
method	4	55 density
polyolefin	2	33 density
density	2	51 excess
ft	2	65 excess
lb	2	65 excess
method	2	30 excess
cavity	3	60 forming
cutting	2	79 forming
forming cavity	2	79 forming
method	3	45 forming
method for forming	3	89 forming
parting	3	71 forming
peripheral	3	69 forming
peripheral parting	2	65 forming
polyolefin	3	49 forming
steps	3	78 forming
cavity	2	43 forming cavity
cutting	2	79 forming cavity
forming	2	60 forming cavity
method	2	30 forming cavity
method for forming	2	71 forming cavity
parting	2	54 forming cavity
peripheral	2	51 forming cavity
peripheral parting	2	65 forming cavity
polyolefin	2	33 forming cavity
steps	2	60 forming cavity
density	2	51 ft
excess	2	79 ft
lb	2	65 ft
method	2	30 ft

density	2	51 greater density
method	2	30 greater density
polyolefin	2	33 greater density
cavity	5	79 heating
closing	4	86 heating
method	7	74 heating
parting	4	82 heating
peripheral	2	51 heating
peripheral parting	2	65 heating
polyolefin	4	59 heating
sufficient	9	93 heating
sufficient period	3	89 heating
sufficient temperature	6	100 heating
temperature	8	98 heating
density	2	51 lb
excess	2	79 lb
ft	2	65 lb
method	2	30 lb
carrie integral fastening	2	79 method
means		
cavity	4	71 method
cutting	2	79 method
density	4	79 method
excess	2	79 method
forming	3	78 method
forming cavity	2	79 method
ft	2	65 method
greater density	2	79 method
heating	7	87 method
lb	2	65 method
method for forming	3	89 method
nonfoamed	2	79 method
organic polymer	2	79 method
parting	4	82 method
peripheral	3	69 method
peripheral parting	2	65 method
polyethylene	2	79 method
polyolefin	9	86 method
steps	5	97 method
sufficient	6	80 method
sufficient temperature	6	100 method
temperature	8	98 method
cavity	3	60 method for forming
cutting	2	79 method for forming
forming	3	78 method for forming
forming cavity	2	79 method for forming

method	3	45 method for forming
parting	3	71 method for forming
peripheral	3	69 method for forming
peripheral parting	2	65 method for forming
polyolefin	3	49 method for forming
steps	3	78 method for forming
method	2	30 nonfoamed
organic polymer	2	79 nonfoamed
method	2	30 organic polymer
nonfoamed	2	79 organic polymer
cavity	5	79 parting
closing	3	75 parting
cutting	2	79 parting
forming	3	78 parting
forming cavity	2	79 parting
heating	4	68 parting
method	4	55 parting
method for forming	3	89 parting
peripheral	5	87 parting
peripheral parting	4	94 parting
polyolefin	5	67 parting
polyolefin being	2	79 parting
steps	3	78 parting
temperature	3	64 parting
cavity	5	79 peripheral
closing	2	57 peripheral
cutting	2	79 peripheral
forming	3	78 peripheral
forming cavity	2	79 peripheral
heating	2	40 peripheral
method	3	45 peripheral
method for forming	3	89 peripheral
parting	5	90 peripheral
peripheral parting	4	94 peripheral
polyolefin	3	49 peripheral
steps	3	78 peripheral
temperature	3	64 peripheral
cavity	4	71 peripheral parting
closing	2	57 peripheral parting
cutting	2	79 peripheral parting
forming	2	60 peripheral parting
forming cavity	2	79 peripheral parting
heating	2	40 peripheral parting
method	2	30 peripheral parting
method for forming	2	71 peripheral parting
parting	4	82 peripheral parting



peripheral	4	79 peripheral parting
polyolefin	2	33 peripheral parting
steps	2	60 peripheral parting
temperature	2	47 peripheral parting
method	2	30 polyethylene
polyolefin	2	33 polyethylene
cavity	6	85 polyolefin
cutting	2	79 polyolefin
density	2	51 polyolefin
forming	3	78 polyolefin
forming cavity	2	79 polyolefin
greater density	2	79 polyolefin
heating	4	68 polyolefin
method	9	81 polyolefin
method for forming	3	89 polyolefin
parting	5	90 polyolefin
peripheral	3	69 polyolefin
peripheral parting	2	65 polyolefin
polyethylene	2	79 polyolefin
polyolefin being	2	79 polyolefin
steps	4	89 polyolefin
temperature	2	47 polyolefin
parting	2	54 polyolefin being
polyolefin	2	33 polyolefin being
cavity	4	71 steps
cutting	2	79 steps
forming	3	78 steps
forming cavity	2	79 steps
method	5	63 steps
method for forming	3	89 steps
parting	3	71 steps
peripheral	3	69 steps
peripheral parting	2	65 steps
polyolefin	4	59 steps
temperature	3	64 steps
cavity	2	43 sufficient
heating	9	95 sufficient
method	6	69 sufficient
sufficient period	3	89 sufficient
sufficient temperature	6	100 sufficient
temperature	6	89 sufficient
cavity	2	43 sufficient period
heating	3	57 sufficient period
sufficient	3	56 sufficient period
heating	6	82 sufficient temperature
method	6	69 sufficient temperature

sufficient	6	80 sufficient temperature
temperature	6	89 sufficient temperature
cavity	4	71 temperature
closing	2	57 temperature
heating	8	91 temperature
method	8	78 temperature
parting	3	71 temperature
peripheral	3	69 temperature
peripheral parting	2	65 temperature
polyolefin	2	33 temperature
steps	3	78 temperature
sufficient	6	80 temperature
sufficient temperature	6	100 temperature

## APPENDIX V

### D. Data for Appendix III, U.S. Patent No. 4,595,551 (Cited Reference - *Maurer*)

#### (1) Data Used in Exemplary Semantic Analysis

Concept	Weight	
copolymer	29	
decorative fabric	14	
fabric	43	
facing	53	
heating	6	
method	90	Means
outer	66	peripheral
polymer	49	
impregnated		
polystyrene	22	
polyurethane	72	
styrene	29	
styrenic	86	Plastic polyolefin
temperature	69	
thermoforming	7	forming

#### (2) Composite and Specific Frequency/Weight Data

Parent	Frequency	Weight	Subordinate
copolymer	2	29	=====
decorative fabric	2	14	=====
fabric	6	43	=====
facing	4	53	=====
heating	2	6	=====
method	15	90	=====
outer	7	66	=====
polymer	2	49	=====
impregnated			
polystyrene	2	22	=====
polyurethane	9	72	=====
styrene	2	29	=====
styrenic	17	86	=====
temperature	7	69	=====

thermoforming	3	7 =====
method	2	37 copolymer
styrene	2	77 copolymer
styrenic	2	35 copolymer
fabric	2	55 decorative fabric
method	2	37 decorative fabric
decorative fabric	2	77 fabric
facing	3	81 fabric
method	4	64 fabric
polymer	2	77 fabric
impregnated		
styrenic	2	35 fabric
fabric	3	72 facing
method	4	64 facing
polymer	2	77 facing
impregnated		
styrenic	3	51 facing
temperature	2	52 heating
copolymer	2	77 method
decorative fabric	2	77 method
fabric	4	83 method
facing	4	92 method
outer	4	80 method
polymer	2	77 method
impregnated		
polystyrene	2	77 method
polyurethane	6	89 method
styrene	2	77 method
styrenic	12	97 method
temperature	4	80 method
method	4	64 outer
polyurethane	5	83 outer
styrenic	4	62 outer
temperature	3	69 outer
fabric	2	55 polymer impregnated
facing	2	63 polymer impregnated
method	2	37 polymer impregnated
styrenic	2	35 polymer impregnated
method	2	37 polystyrene
styrenic	2	35 polystyrene
method	6	78 polyurethane
outer	5	88 polyurethane
styrenic	6	75 polyurethane
temperature	5	88 polyurethane
copolymer	2	77 styrene
method	2	37 styrene

styrenic	2	35 styrene
copolymer	2	77 styrenic
fabric	2	55 styrenic
facing	3	81 styrenic
method	12	100 styrenic
outer	4	80 styrenic
polymer	2	77 styrenic
impregnated		
polystyrene	2	77 styrenic
polyurethane	6	89 styrenic
styrene	2	77 styrenic
temperature	5	88 styrenic
thermoforming	2	69 styrenic
heating	2	77 temperature
method	4	64 temperature
outer	3	69 temperature
polyurethane	5	83 temperature
styrenic	5	69 temperature
styrenic	2	35 thermoforming

## APPENDIX V

### E. Data for Appendix IVA - U.S. Patent No. 4,627,177 (Control 1)

#### (1) Data Used in Exemplary Semantic Analysis

Concept	Weight
material	98
member	95

#### (2) Composite and Specific Frequency/Weight Data

Parent	Frequency	Weight	Subordinate
material	4	98	=====
material	3	100	member
member	9	95	=====
member	3	82	material

## APPENDIX V

### F. Data for Appendix IVB - U.S. Patent No. 4,364,189 (Control 2)

#### (1) Data Used in Exemplary Semantic Analysis

Concept	Weight
absorbing	69
density	9
elastomeric	10
firmness	86
lateral	62
longitudinal	86
means	49
midline axis	70
operative	6
outer	77
resilient material	86 Plastic
stability	69
used for running	69

#### (2) Composite and Specific Frequency/Weight Data

Concept	Frequency	Weight	Subordinate Concept
absorbing	2	69	=====
density	3	9	=====
elastomeric	2	10	=====
firmness	2	86	=====
lateral	3	62	=====
longitudinal	2	86	=====
means	7	49	=====
midline axis	7	70	=====
operative	2	6	=====
outer	4	77	=====
resilient material	2	86	=====
stability	2	69	=====
used for running	2	69	=====
lateral	2	91	absorbing
means	2	73	absorbing

stability	2	100 absorbing
used for	2	100 absorbing
running		
elastomeric	2	100 density
midline axis	2	73 density
density	2	91 elastomeric
midline axis	2	73 elastomeric
longitudinal	2	100 firmness
midline axis	2	73 firmness
outer	2	85 firmness
resilient	2	100 firmness
material		
absorbing	2	100 lateral
means	2	73 lateral
stability	2	100 lateral
used for	2	100 lateral
running		
firmness	2	100 longitudinal
midline axis	2	73 longitudinal
outer	2	85 longitudinal
resilient	2	100 longitudinal
material		
absorbing	2	100 means
lateral	2	91 means
operative	2	100 means
stability	2	100 means
used for	2	100 means
running		
density	2	91 midline axis
elastomeric	2	100 midline axis
firmness	2	100 midline axis
longitudinal	2	100 midline axis
outer	2	85 midline axis
resilient	2	100 midline axis
material		
means	2	73 operative
firmness	2	100 outer
longitudinal	2	100 outer
midline axis	2	73 outer
resilient	2	100 outer
material		
firmness	2	100 resilient material
longitudinal	2	100 resilient material
midline axis	2	73 resilient material
outer	2	85 resilient material
absorbing	2	100 stability



lateral	2	91 stability
means	2	73 stability
used for	2	100 stability
running		
absorbing	2	100 used for running
lateral	2	91 used for running
means	2	73 used for running
stability	2	100 used for running